

## **Edward E. Thomas, Jr., Ph.D., Professor**

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### EDUCATION

1996 Ph.D. in Physics, Auburn University.  
1993 MS in Physics, Massachusetts Institute of Technology.  
1989 BS in Physics, Florida Institute of Technology

### PROFESSIONAL EXPERIENCE

2007-present Professor, Auburn University  
2002-2007 Associate Professor, Auburn University  
2000-2002 Assistant Professor, Auburn University  
1996-1999 Assistant Professor, Fisk University  
1993-1996 Research Assistant, Auburn University, Fusion Research Laboratory  
1989-1993 Research Assistant, Massachusetts Institute of Technology, Plasma Fusion Center, Alcator C-Mod

### SIGNIFICANT HONORS AND AWARDS

Professional Improvement Leave – Department of Physics and Astronomy, The University of Iowa (Fall, 2006)

Elected for membership, International Union of Radio Science (URSI), Commission H (2004)

Outstanding Academic Advisor – College of Science and Mathematics – Auburn University (2003)

National Society of Black Physicists - Outstanding Dissertation Award (1998)

Auburn University, Physics Department – Outstanding Graduate Research Award (1996)

Alabama / Department of Energy EPSCoR Traineeship (1994)

AT&T Bell Laboratories - Corporate Research Fellowship Program (1989)

### GOVERNMENT AND PROFESSIONAL SERVICE:

National Science Foundation – Physics Division – Committee of Visitors (COV) Feb., 2009  
DOE – FESAC Toroidal Alternates Panel (TAP) Mar., 2008 – Nov., 2008  
DOE – Low Temperatures Plasma Science Panel Mar., 2008 – Apr., 2008  
American Physical Society – Committee on Minorities (COM) Jan., 2005 – Dec., 2007  
National Research Council – Plasma Sciences Committee (PLSC) Jul., 2004 – Jun., 2008  
Dept. of Energy – Fusion Energy Sciences Advisory Committee (FESAC) Nov., 2002-present  
DOE – ORISE Fellowship Committee – Fusion Energy Sciences Fellowship Mar., 2002-Mar., 2008  
Dept. of Energy – Innovative Confinement / Basic Plasma Science – Committee of Visitors (COV) Feb., 2005  
Chairperson – FESAC Panel on Workforce Development for Fusion Energy Jul., 2003 – Mar., 2004  
National Steering Committee – 3<sup>rd</sup> National Oceanographic and Atmospheric Administration (NOAA) conference on Expanding Opportunities in Oceanic and Atmospheric Sciences Nov., 2000 – Mar., 2001  
National Science Foundation – Physics Division – Committee of Visitors (COV) Feb., 2000  
Joint National Science Foundation / Department of Energy Plasma Science and Engineering Panel Feb., 1999

**ORGANIZATIONAL AFFILIATIONS**

American Physical Society (APS) (since 1992)  
 Division of Plasma Physics (DPP)  
 Forum on Education (FED)

National Society of Black Physicists (since 1996)

International Union of Radio Science (URSI) – Commission H (Waves in Plasmas) (since 2004)

**OTHER PROFESSIONAL ACTIVITIES**

Quality Education for Minorities Network (QEM) – Consultant on CAREER Program (2003- 2005, 2008, 2009)

CRT Holdings, Inc., – Technical Consultant

Electric Power Research Institute (EPRI) – Technical Consultant

**RESEARCH SUPPORT**

External Research Support Summary (rounded values):

<u>Agency (awarded only)</u>	<u>1998-present</u>
National Science Foundation	\$1,463,000
Department of Energy	\$1,146,000
Other Federal Agencies (NRL, NASA, etc.)	\$ 72,000
<b>Total Support:</b>	<b>\$2,681,000</b>

External Research Projects: (last 5 years)

<u>Title</u>	<u>Agency</u>	<u>Pi/Co Pi</u>	<u>Period or Submitted</u>	<u>Award</u>
Effect of ion flows on heating and instabilities in weakly coupled dusty plasmas	NSF	E. Thomas, Jr.	8/08 – 7/11	\$426,000
Multi-scale investigation of sheared flows in magnetized plasmas	DOE	E. Thomas, Jr.	11/07 – 10/10	\$355,804
Asymmetric response of a magnetized plasma column to applied radial electric fields	DOE	E. Thomas, Jr.	11/04 – 10/07	\$225,000
Experimental studies of particle cloud - plasma boundaries and velocity space distribution functions in glow discharge dusty plasmas	NSF	E. Thomas, Jr.	7/04 – 6/08	\$415,000
Control and application of particle transport in dusty plasmas	NSF	E. Thomas, Jr.	8/03 - 7/05	\$50,000
Support for the Tenth US Workshop on the Physics of Dusty Plasmas – Auburn University	DOE	E. Thomas, Jr.	5/03 – 4/04	\$5,000
Major Research Instrumentation (MRI): Acquisition of a stereoscopic particle image velocimetry system and particle transport diagnostics for dusty plasma investigations	NSF	E. Thomas, Jr.	8/02 – 7/04	\$104,451
Impact of axial and radial electric field shear on plasma instabilities in a linear plasma column	DOE	E. Thomas, Jr.	11/01 – 10/04	\$239,000
CAREER: Studies of the physical and thermodynamic properties of dusty plasmas and plasma crystals	NSF	E. Thomas, Jr.	7/00 – 6/03	~\$200,000

## SCHOLARLY ACTIVITIES

Refereed Journal Articles: 38 [24 (as first author), 14 (as co-author); 4 pending as of 2/2009]  
 Contributed Conference Proceedings: 14  
 Contributed Conference Presentations: 103  
 Invited Talks: 26

### Selected Refereed Papers: (last 5 years)

- Marlene Rosenberg, Edward Thomas, Jr., and Robert L. Merlino, *A note on dust wave excitation in a plasma with warm dust: Comparison with experiment*, Phys. Plasmas, **15**, 073701 (2008).
- Edward Thomas, Jr., Ross Fisher, and Robert L. Merlino, *Observations of dust acoustic waves driven at high frequencies: Finite dust temperature effects and wave interference*, Phys. Plasmas, **14**, 123701 (2007).
- Jeremiah Williams and Edward Thomas, Jr., *Measurement of the kinetic dust temperature of a weakly coupled dusty plasma*, Phys. Plasmas, **14**, 063702 (2007).
- Zachary Aldewereld and Edward Thomas, Jr., *Observation of one-dimensional flows in a DC glow discharge dusty plasma*, IEEE Trans. Plasma Sci., **35**, 309 (2007).
- Jeremiah Williams and Edward Thomas, Jr., *Measurement of the kinetic dust temperature of a weakly coupled dusty plasma*, IEEE Trans. Plasma Sci., **35**, 303 (2007).
- Edward Thomas, Jr., *Measurements of a spatially growing dust acoustic wave in a dc glow discharge plasma*, Phys. Plasmas, **13**, 042105 (2006).
- E. Thomas, Jr. and J. Williams, *Applications of stereoscopic particle image velocimetry: dust acoustic waves and velocity space distribution functions*, Phys. Plasmas, **13**, 055702 (2006).
- J. Williams and E. Thomas, Jr., *Initial measurement of the kinetic dust temperature of a weakly-coupled dusty plasma*, Phys. Plasmas, **13**, 063509 (2006).
- Edward Thomas, Jr. and Jeremiah Williams, *Experimental measurements of velocity dissipation and neutral drag effects during the formation of a dusty plasma*, Phys. Rev. Letters, **95**, 055001 (2005).
- Edward Thomas, Jr., Ashley Eadon, and Edwynn A. Wallace, *Suppression of low frequency plasma instabilities in a magnetized plasma column*, Phys. Plasmas, **12**, 042109 (2005).
- E. Thomas, Jr., A. Eadon, E. Wallace, *Suppression of low frequency plasma instabilities in a magnetized plasma column*, Phys. Plasmas, **12**, 042109 (2005).
- E. Wallace, J. D. Jackson, and E. Thomas, Jr., *Design and operation of the Auburn Linear Experiment for Instability Studies (ALEXIS): A new plasma experiment for studying shear driven flows*, Rev. Sci. Instrum., **75**, 5160 (2004).
- E. Thomas, Jr., J. Williams, and J. Silver, *Application of stereoscopic particle image velocimetry to studies of transport in a dusty (complex) plasma*, Phys. Plasmas, **11**, L37 (2004).
- E. Thomas, Jr., K. Avinash, and R. L. Merlino, *Probe induced voids in a dusty plasma*, Phys. Plasmas, **11**, 1770 (2004).

### Selected Invited Talks:

- October 7, 2005 - "World Year of Physics: Plasmas", University of West Georgia, Carrollton, GA  
 October 24, 2005 - APS-Div. of Plasma Physics, Basic Plasma Science Invited Talk, Denver, CO  
 October 9, 2006 - University of Iowa, Iowa City, IA  
 November 30, 2006 - University of Wisconsin - Madison, Madison, WI  
 September 20, 2007 - Rhodes College, Memphis, TN  
 November 9, 2007 - Florida Institute of Technology, Melbourne, FL  
 December 6, 2007 - Universität Greifswald, Greifswald, Germany  
 December 10, 2007 - FOM-Institute for Plasmaphysics 'Rijnhuizen', Nieuwegein, The Netherlands